

# Social Science: Disciplined Study of the Social World

Elisa Jayne Bienenstock

**MORS Mini-Symposium**

Social Science Underpinnings of Complex Operations (SSUCO)

18-21 October 2010

Report Documentation Page				Form Approved OMB No. 0704-0188	
Public reporting burden for the collection of information is estimated to average 1 hour per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden, to Washington Headquarters Services, Directorate for Information Operations and Reports, 1215 Jefferson Davis Highway, Suite 1204, Arlington VA 22202-4302. Respondents should be aware that notwithstanding any other provision of law, no person shall be subject to a penalty for failing to comply with a collection of information if it does not display a currently valid OMB control number.					
1. REPORT DATE <b>OCT 2010</b>		2. REPORT TYPE		3. DATES COVERED <b>00-00-2010 to 00-00-2010</b>	
4. TITLE AND SUBTITLE <b>Social Science: Disciplined Study of the Social World</b>				5a. CONTRACT NUMBER	
				5b. GRANT NUMBER	
				5c. PROGRAM ELEMENT NUMBER	
6. AUTHOR(S)				5d. PROJECT NUMBER	
				5e. TASK NUMBER	
				5f. WORK UNIT NUMBER	
7. PERFORMING ORGANIZATION NAME(S) AND ADDRESS(ES) <b>Georgetown University,37th and O Streets, N.W,Washington,DC,20057</b>				8. PERFORMING ORGANIZATION REPORT NUMBER	
9. SPONSORING/MONITORING AGENCY NAME(S) AND ADDRESS(ES)				10. SPONSOR/MONITOR'S ACRONYM(S)	
				11. SPONSOR/MONITOR'S REPORT NUMBER(S)	
12. DISTRIBUTION/AVAILABILITY STATEMENT <b>Approved for public release; distribution unlimited</b>					
13. SUPPLEMENTARY NOTES <b>Social Science Underpinnings of Complex Operations 18-21 October 2010; George Mason University, Arlington Campus. U.S. Government or Federal Rights License</b>					
14. ABSTRACT					
15. SUBJECT TERMS					
16. SECURITY CLASSIFICATION OF:			17. LIMITATION OF ABSTRACT <b>Same as Report (SAR)</b>	18. NUMBER OF PAGES <b>24</b>	19a. NAME OF RESPONSIBLE PERSON
a. REPORT <b>unclassified</b>	b. ABSTRACT <b>unclassified</b>	c. THIS PAGE <b>unclassified</b>			

# What is Social Science?

Science is the disciplined study of the world.

Social science is the disciplined study of the social world: people, groups, society, globalization, ethnic conflict ....

The diversity of topics, methods, theories, approaches, findings creates confusion about what social science is and how social science can be utilized by the DoD and Intelligence Communities.

This goal of this talk is to orient the non-social scientist to the landscape of social science and maybe address some misconceptions

# Social Science in DoD / Intel Today

The DoD in 2010 is not unacquainted with Social Science

Several programs and approaches are focused on building a social science capability:

1. Social Scientists as SMEs.
2. “Social Scientist Soldiers” (Human Terrain Teams).
3. Quantitative and Computational Social Science Models.
4. Social Science Data Collection and Analysis Projects.

Yet, there is a sense that there are still untapped elements of social science that can benefit the DoD.

# Social Science ≠ Intel

Social Science “tradecraft” provides a different perspective than traditional intelligence methods.

- Different goals.
- Different time scale.
- Different subjects.
- Many different types of different methods.
- Different “ethical” directives.

Nonetheless insights from social science research, and the adoption of social science methods for use by the DoD may increase effectiveness and improve outcomes.

# Social Science as Science

Fundamentally, social science is science and social scientists are scientists.

What is confusing and special about social science is that the subject of study is US.

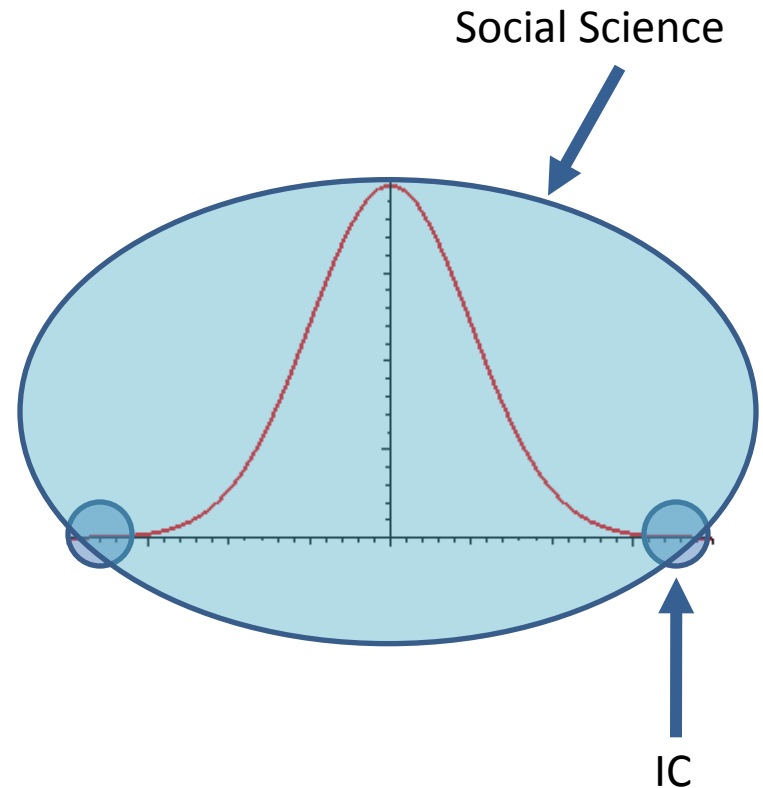
This provides challenges:

Method: The researcher must collect data about a system of which the researcher is an element.

Public Relations: Everybody thinks they are a social scientists, so expertise is undervalued.

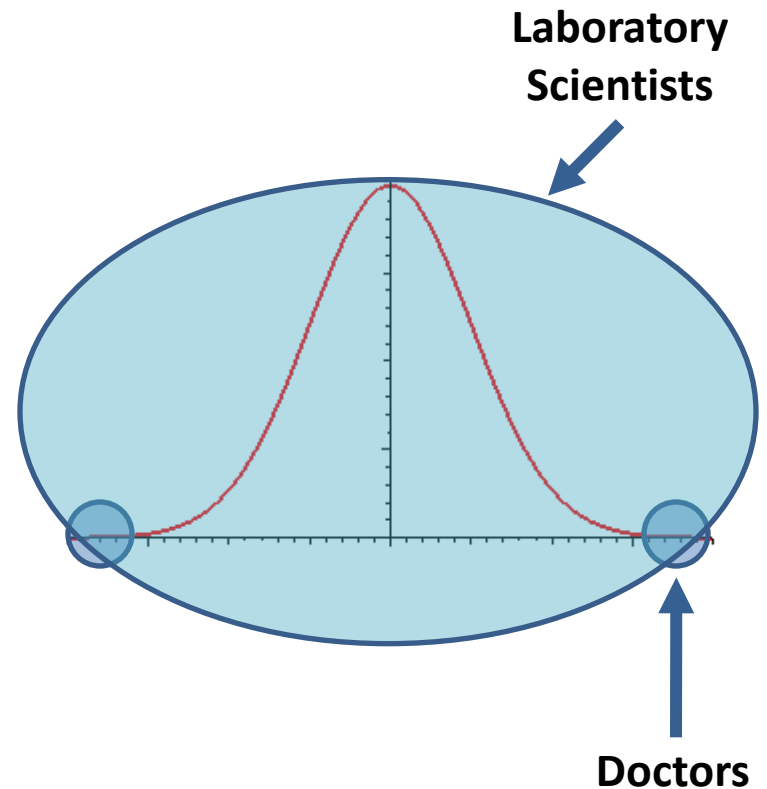
# Social Science Seeks to Understand

- For selecting cases and “subjects”  
Intelligence analysis focuses on in-depth understanding of **what and who**.
- Social science seeks to understand **why** by understanding the whole system using a variety of methods.
  - Some methods select on the dependent variable for deeper insight.
  - Others investigate sources of variance.
  - Eventually a meta-analysis provides a deep and holistic understanding.



# Comparison to Life Science

- For selecting cases and “subjects” clinicians focuses on in-depth understanding of **who and what**.
- Medical science seeks to understand **why** by understanding the whole system using a variety of methods.
  - Some methods select on the dependent variable for deeper insight.
  - Others investigate sources of variance.
  - Eventually a meta-analysis provides a deep and holistic understanding.





***IN VIVO***



***IN SITU***

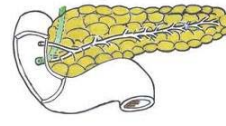
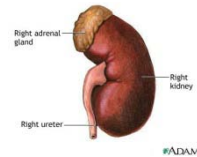


Figure 1: Muscle belly with ten various component parts from dissection of  
Mammal (Muscle & Connective Tissue) from Dissection of Mammal (Muscle & Connective Tissue)



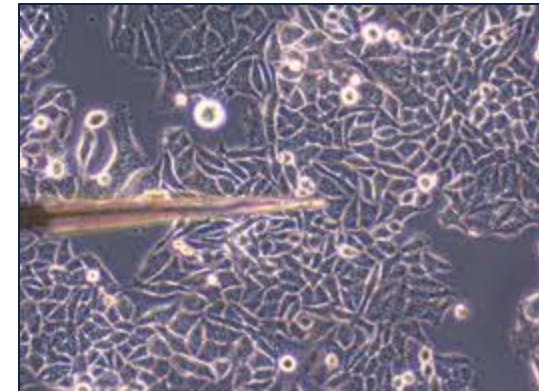
***IN SITU***

Biotech Company

Established  
cell lines

1° cell culture

***IN VITRO***



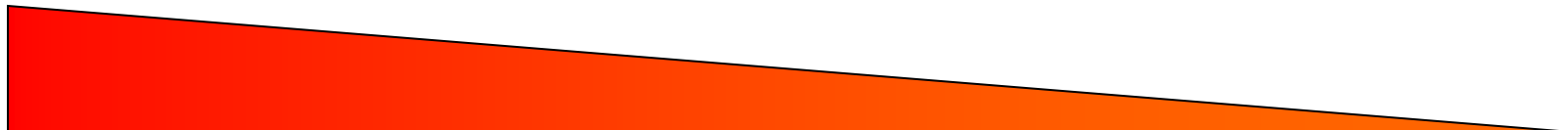
Internal Validity



*In Vivo*

*In Situ*

*In Vitro*



External Validity

***IN VIVO***



***IN SITU***

Biotech Company

College Students

US Census

Indian Village

Facebook exchanges

***IN VITRO***



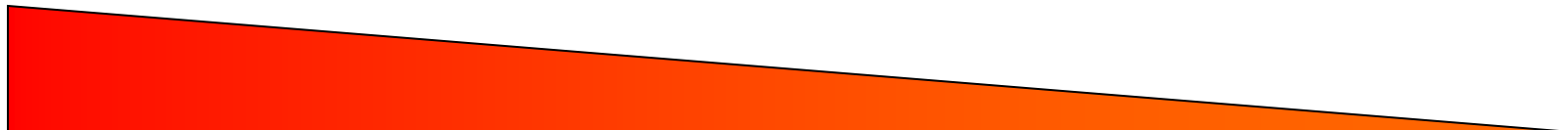
Internal Validity



*In Vivo*

*In Situ*

*In Vitro*



External Validity

# Method: Scientific Method

Like all science, social science requires:

Understanding of prior work

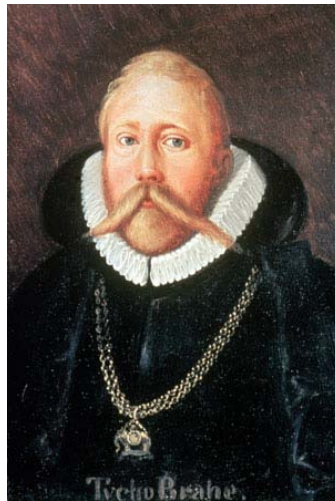
Theory

Empirical investigation



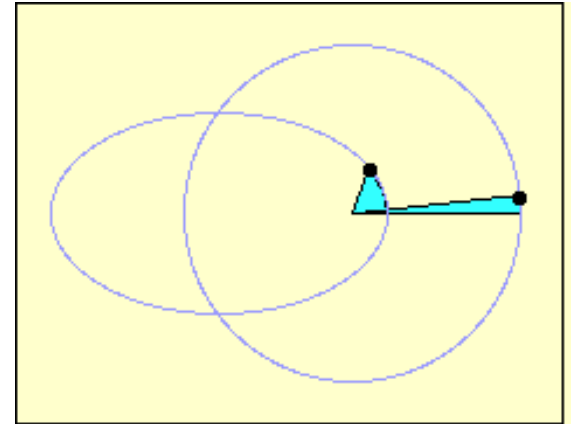
Johannes Kepler

+



Tycho Brahe

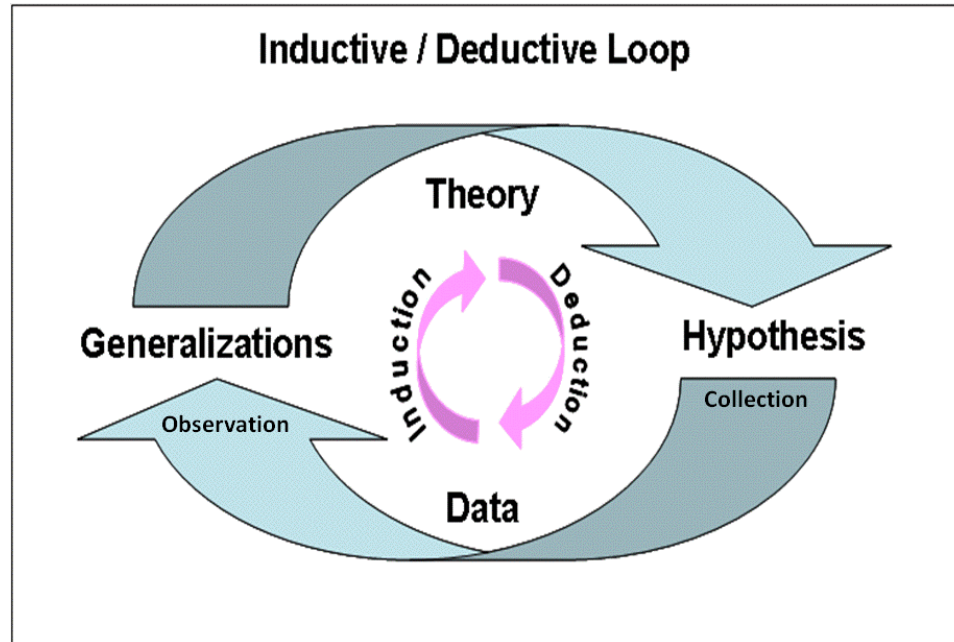
=



Social Science is the application of the scientific method to questions about people and their interactions

# Public Relations Challenge

A study of social institutions is so familiar to humans and the findings seem intuitive so the methods to acquire facts is not recognized.



Social Scientists are often asked for facts not the methods for knowing the facts but social “science” is a tradition of data collection and analysis methods, techniques and standards for understanding the social space.

# Underutilization of Social Science by DOD

Today government programs tend to focus on inductive social science for either deep “cultural understanding” or the production of decision tools. Few deductive studies are funded.

**Inductive  
Data  
Collection  
and Analysis**

**Tool  
Development**

# Underutilization of Social Science by DOD

Today government programs tend to focus on inductive social science for either deep “cultural understanding” or the production of decision tools.

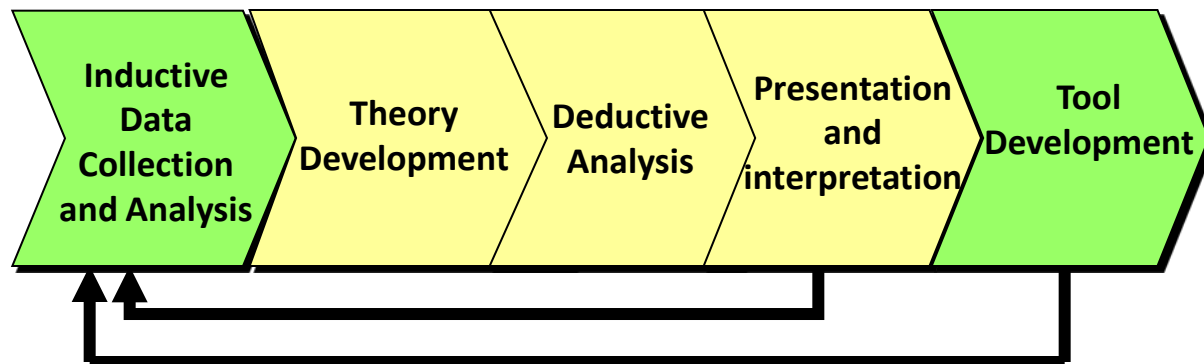
Few deductive studies are funded.

Hypothesis testing provides avenues to

Routinize social analysis.

Validate findings and methods.

These are important factors in developing useful tools.





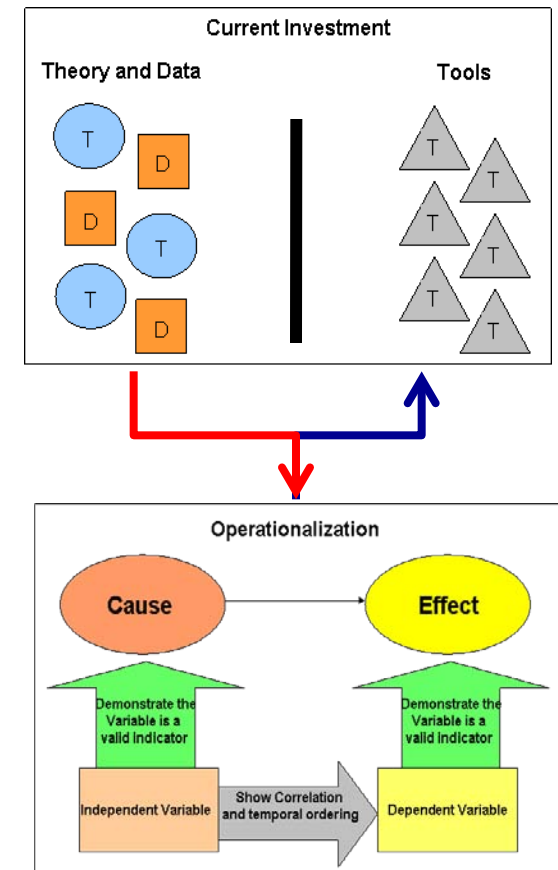
# Deductive Social Science Methods formalize social phenomenon to allow hypothesis testing

## Quantification of qualitative data allow

- Objective analysis.
- Mathematical formalizations.
- Statistical Analysis.
- Replicable studies and procedures.

## To show cause and effect you must:

1. Find indicators or proxies of the theorized cause.
2. Find indicators or proxies of the theorized effect.
3. Validate that the proxies represent the concepts.
4. Show a correlation between cause and effect.
5. Show cause precedes effect.
6. Rule out plausible rival hypotheses.



**Operationalization: The process of transforming theory into testable hypotheses**

# Value to DoD?

Social Science is labor intensive and difficult

- Collecting data is time consuming
- Ensuring data is reliable and valid requires multiple methods and repeated studies and observations
- Theory building is tedious
- Knowing when a finding is “sound” and when it applies can be subtle

Investments in these studies can provide huge benefits to DoD

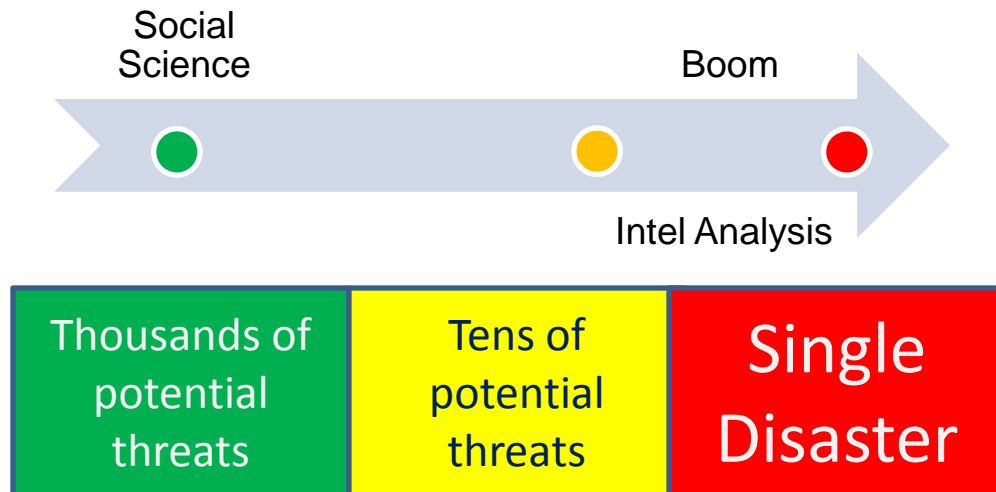
1. Deeper understanding of the context of emergent threats.
2. New tools and methods for studying people.
3. Valid, reliable and scoped models.
4. Data

# Deeper understanding of Emergent Threats

Social Science is focused on the Big Picture: threats emerge dynamically (e.g. radicalization).

Examination of entire populations allows us to understand these processes.

Multiple studies with multiple methods provides replication, triangulation and identification of research biases.



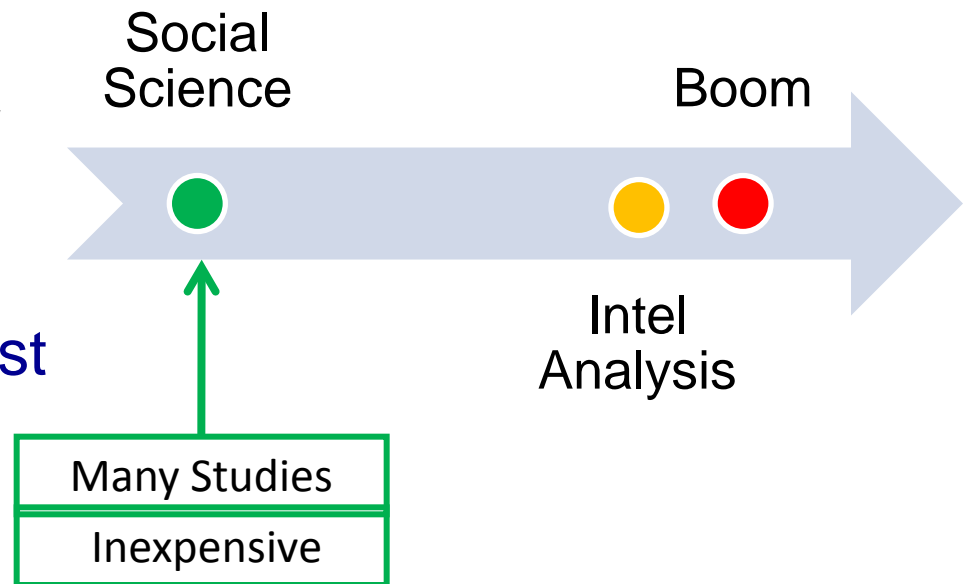
Social science is focused further 'left of boom'.

Intel analysis enables materialized threats to be stopped before acting.

Social science can show us how to stop threats from materializing.

# Deeper understanding of Emergent Threats

- Science can not be done by studying outliers.
  - The laws of nature cannot be discovered by focusing on exceptions to the rule (do not generalize).
  - Social Scientists seek to understand the rules.
    - Provides a baseline to better understand the exceptions.
- If a social science project starts after a crisis it is a lost opportunity
- What is required is a tracking (and funding of) many inexpensive social science projects that can be informative when needed.

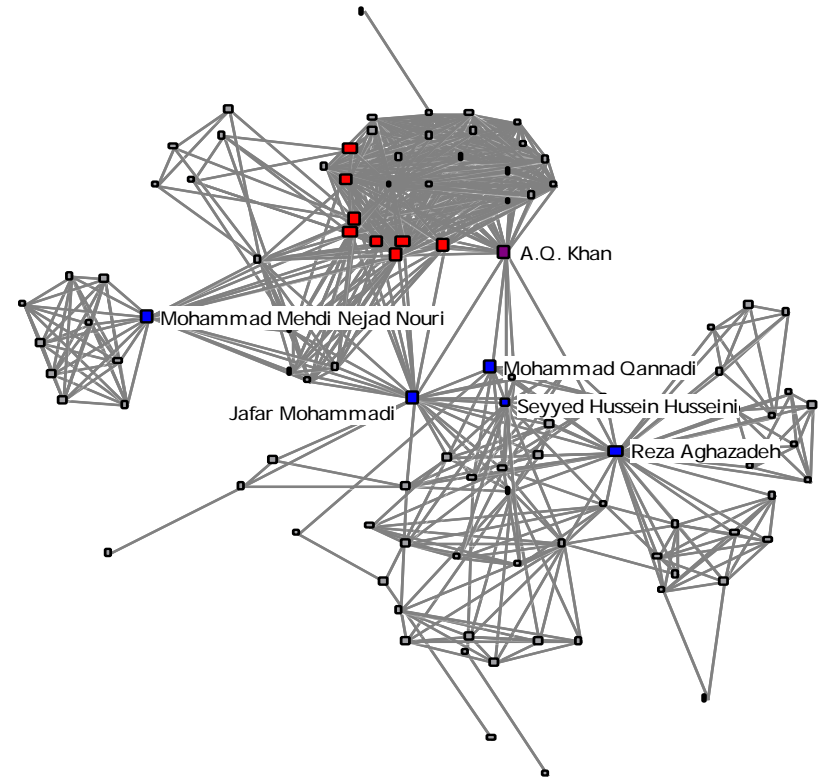


# New tools and methods for studying people

Social Science methods have been incorporated into the intelligence analysts “toolkit.”

- Social Network / Link Analysis.
- Game / decision theory.
- Kinship classification.

New methods could add to the capability and be adapted for IC use.



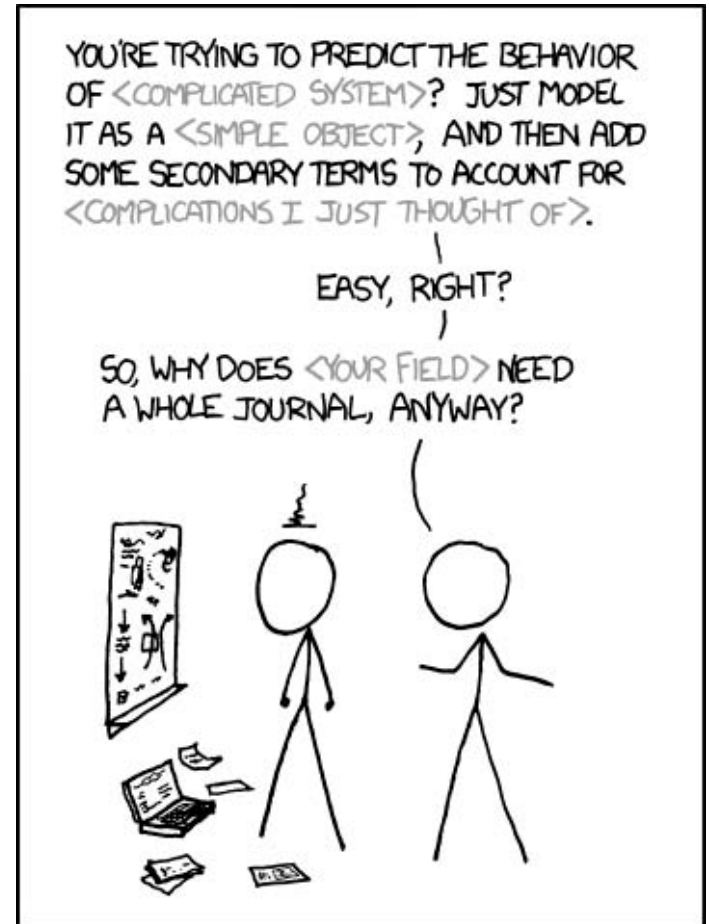
# Valid, reliable and scoped models

## Modeling Social Science is not the same as modeling Science

- Scientists have discovered “constants” and have identified reliable equations to instantiate into models.
- Social Scientists have not.
- Social Scientists have over the centuries refined techniques for measuring social phenomenon.

Social Science is Not EASY

Social Science is Not SOFT



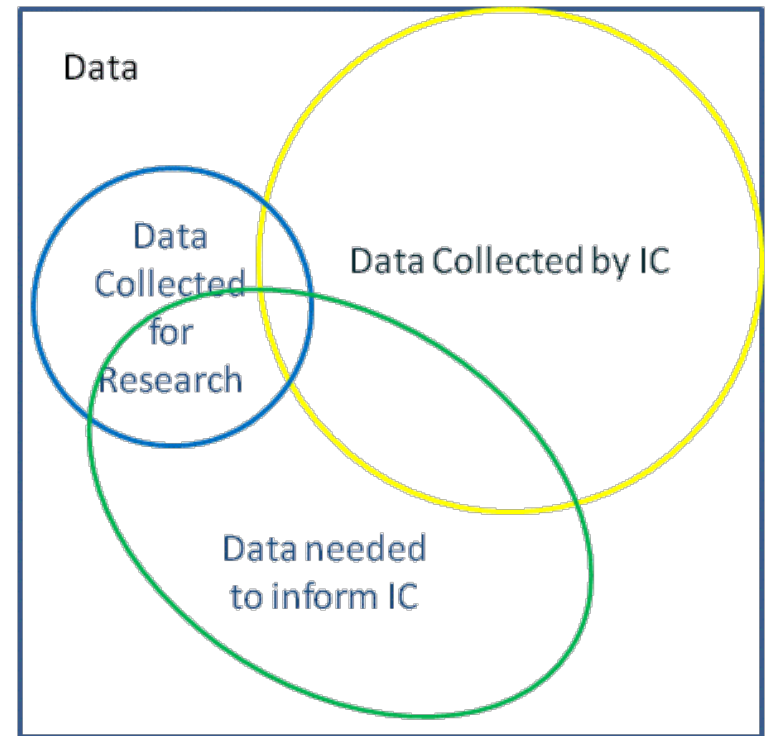
LIBERAL-ARTS MAJORS MAY BE ANNOYING SOMETIMES, BUT THERE'S *NOTHING* MORE OBNOXIOUS THAN A PHYSICIST FIRST ENCOUNTERING A NEW SUBJECT.

Many challenges are unique; social scientists have a unique understanding of how to interpret and model findings

# Data

Social Scientists collect data differently and for different reasons than the IC, but these data may prove useful.

- Case Studies of groups that include people of interest.
- Survey research of areas of interest.
- Computational or formal models that relate to behaviors of interest.



These do not provide intelligence, they provide a deep understanding about context and meaning.

# Conclusion

Social Science provides a long term, holistic perspective focused on understanding social world that compliments methods already in use and can further inform and benefit the DoD by:

- Providing contrast.
- Identifying sources of bias.
- Providing formal models.
- Providing data (and data quality validation).



Thank you.

Elisa Jayne Bienenstock, PhD